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Docket No. 60,130-709 (99MRA0211)

GROUP 3600

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICANTS: Kalageros et al.

EXAMINER: Carpenter, S.

SERIAL NO.: 09/592,751

GROUP ART UNIT: 3612

FILED: June 13, 2000

FOR: CRUMPLE ZONE FOR BODY PANELS

ATTORNEY DOCKET NO: 60,130-709 (99MRA0211)

BOX-AF

Assistant Commissioner for Patents
Washington, D.C. 20231

OFFICIAL

REQUEST FOR RECONSIDERATION

Dear Sir:

In response to the Office Action of November 12, 2002, Applicant respectfully requests consideration of the following arguments.

Claims 1-37 are pending in the application including independent claims 1, 12, 14, 20, and 31. Claims 5-9, 12, 13, 17-19, and 25-31 being withdrawn from consideration as being drawn to a non-elected species.

Claims 1, 2, 32, and 33 stand rejected under 35 U.S.C. 102(b) as being anticipated by Amano et al. (Amano). Claim 1 includes the feature a body panel having spaced reinforcement on a sheet of material such that the panel crumples in a predetermined manner. Amano does not disclose Applicant's invention as set forth in claim 1.

First, Applicant never argued that an airplane was not a vehicle. Applicant was arguing that Amano was not relevant as the reference is directed toward the formation of a cylindrical inner fuselage wall to improve sound deadening in an aircraft and has nothing to do with forming a vehicle body panel in such a manner as to achieve predetermined crumpling in response to an impact force. As discussed in the background of the subject application, one of the features that Applicant was seeking to produce was a vehicle body panel that is structurally sound yet crumples in a predetermined fashion to reduce the risk to a pedestrian in the case of an accident. One of

Docket No. 60,130-709 (99MRA0211)

ordinary skill in the art would hardly look at aircraft fuselage technology to address this problem. Further, there would be no reason to control body panel crumpling for an airplane, as airplane crashes are at very high speeds and controlled crumpling of body panels at crash speeds over five hundred miles per hour would not provide any added benefits to the passengers or to anyone being hit by a crashing airplane.

Second, the examiner argues, "any vehicle panel would crumple in a predetermined manner when subjected to a predetermined force." Applicant respectfully traverses this assumption. In certain situations, the vehicle body panel will not crumple at all when subject to an impact force, such as when a vehicle with metal body panels hits a pedestrian. Such a situation is undesirable as the pedestrian can be severely injured. Applicant has invented a composite panel that crumples in a predetermined manner such that an impact force can be absorbed more efficiently and effectively by the vehicle instead of being completely transferred to an unfortunate pedestrian. Further, when a vehicle is subjected to a crash, the body panels without spaced reinforcements do not crumple in a predetermined manner but instead crumple in an undetermined manner. Vehicle crashes can occur in an infinite number of ways. With traditional body panels, it is impossible to predict beforehand exactly how a panel will crumple under a plurality of conditions that are infinitely variable such as speed, braking, steering, environmental, and road conditions, for example. Applicant has invented a panel with spaced reinforcements such that the panel will crumple in a predictable or predetermined manner. According to Merriam Webster's Collegiate Dictionary, Tenth Edition, Merriam-Webster Incorporated, 1994, the term "predetermine" means "1 a: foreordain, predestine b: to determine beforehand 2: to impose a direction or tendency on beforehand."

Third, Amano does not disclose, suggest, or teach the use of spaced reinforcement on a sheet of material to control crumpling. The examiner argues that the corrugations of Amano can be broadly interpreted as being reinforcing in nature. Applicant respectfully traverses this characterization of the teachings of Amano.

While it is well settled that terms in a claim are to be given their broadest reasonable interpretation, this interpretation must be consistent with the specification, with claim language being read in light of the specification as it would be interpreted by one of ordinary skill in the art. In re Bond, 15 USPQ2d 1566, 1567 (Fed. Cir. 1990). The examiner has improperly expanded the

Docket No. 60,130-709 (99MRA0211)

meaning to be give to the claim language "spaced reinforcement on said sheet of material such that said panel crumples in a predetermined manner." As shown in the Figures and as described in the accompanying specification, the vehicle body panel is formed with spaced reinforcements such that the body panel that will crumple in a predisposed manner upon impact. Spaced reinforcements, as described in various embodiments in the application inherently means there are areas in the panel that have reinforcements and which are separated from each other by areas in the panel that do not have the reinforcements. There is no such structure in Amano. Further, one of ordinary skill in the art would not consider the corrugations for sound deadening purposes as corresponding to the claimed spaced reinforcement. Thus, Amano does not anticipate claim 1.

With regard to claim 2, the reference to fiber-reinforced plastics simply means that the fuselage wall in Amano is made from a composite material. Amano discloses different layers of woven material to form a cylindrical fuselage wall having greater rigidity in a circumferential direction than in an axial direction. There is no disclosure of spaced reinforcements on a polymer sheet of material in Amano as claimed by Applicant in claim 2. The examiner argues that claim 2 makes no mention of spaced reinforcements. Applicant respectfully traverses this characterization of claim 2. Claim 2 is dependent from claim 1 which includes the limitation of a spaced reinforcement on a sheet of material. Thus, claim 2 does include the term "spaced reinforcement."

Claim 32 includes the feature of the sheet of material including at least one generally planar portion with the spaced reinforcement being formed within said planar portion in an alternating pattern extending along a linear path. The examiner argues, "the panels of Amano could be broadly interpreted as being 'generally planar.'" The examiner has improperly expanded the meaning of "generally planar." As shown in the Figures and as described in the accompanying specification, the vehicle body panel is planar panel with the spaced reinforcement being formed within the planar portion in an alternating pattern extending along a linear path. There is no such structure in Amano, which is instead directed toward a cylindrical fuselage. According to Merriam Webster's Collegiate Dictionary, Tenth Edition, Merriam-Webster Incorporated, 1994, the term "planar" is defined as "of, relating to, or lying in a plane" and the term "plane" is defined as "a flat or level surface . . . a surface of such nature that a straight line joining two of its points lies wholly in the surface." One of ordinary skill in the art would not consider the cylindrical fuselage of Amano as

Docket No. 60,130-709 (99MRA0211)

corresponding to the claimed body panel with a generally planar portion with spaced reinforcement being formed in alternating pattern along a linear path. Thus, Amano does not anticipate claim 32.

Claim 33 includes the feature of the spaced reinforcement crumpling in a generally linear direction in response to an impact force. The examiner argues that the panel of Amano could crumple in such a path. As Amano does not disclose or teach any type of controlled or predetermined crumpling, there certainly is no teaching of a planar body panel with spaced reinforcement being formed in alternating pattern along a linear path where the spaced reinforcement crumples in a generally linear direction in response to an impact force. Thus, Amano does not anticipate claim 33.

Claims 3, 4, 10, 11, 14-16, 20-24, and 34-37 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Spain et al. '697 (Spain) in view of Amano and Vogt et al. '522 (Vogt). First, there is no motivation or suggestion to modify Spain with Amano or Vogt.

Spain is directed toward the formation of a molded plastic vehicle body panel. Amano is directed toward the formation of a cylindrical inner fuselage wall to improve sound deadening in an aircraft and has nothing to do with forming a vehicle body panel in such a manner as to achieve predetermined crumpling in response to an impact force. As discussed in the background of the subject application, one of the features that Applicant was seeking to produce was a vehicle body panel that is structurally sound yet crumples in a predetermined fashion to reduce the risk to a pedestrian in the case of an accident. One of ordinary skill in the art would not look to the teachings of Amano concerning aircraft fuselage technology to address this problem. Further, as discussed above, Amano does not teach the use of spaced reinforcement in a body panel such that the panel crumples in a predetermined manner as there is no reason to control body panel crumpling for an airplane because impact speeds for airplane crashes are so high that controlling crumpling in a predetermined manner would not provide any benefit.

Vogt teaches the use of a vehicle body panel having inner and outer skins bonded to a soft core structure made from foam, a honeycomb structure, or paper webbing to form crumple zones. Thus, while Vogt teaches the use of crumple zones, this still does not lead one of ordinary skill in the art to incorporate the teachings of Amano into Spain. One of ordinary skill in the art simply would not look to the teachings of Amano to address problems related to reducing pedestrian

Docket No. 60,130-709 (99MRA0211)

injuries by improving vehicle crumple zones. Thus, there is no motivation in either Amano, Vogt, Spain or in the knowledge generally available to one of ordinary skill in the art to modify Spain with the teachings of Amano to include spaced reinforcements in a sheet of material for a body panel.

Second, the combined references do not disclose, suggest, or teach the features of claims 3, 4, 10, 11, 14-16, 20-24, and 34-37. Claim 3 includes the combination of a polymer sheet with a sheet of colored material attached to the polymer sheet and with spaced reinforcements on the sheet of material such that the panel crumples in a predetermined manner.

The examiner admits that Spain does not disclose this combination of features. Amano also does not disclose, suggest, or teach the use of spaced reinforcement on a sheet of material to achieve predetermined crumpling. The examiner argues that the corrugations of Amano can be broadly interpreted as being reinforcing in nature. Applicant respectfully traverses this characterization of the teachings of Amano. The examiner has improperly expanded the meaning to be given to the claim language "spaced reinforcement on said sheet of material such that said panel crumples in a predetermined manner," especially in light of the description of the subject invention. As shown in the Figures and as described in the accompanying specification, the vehicle body panel is formed with spaced reinforcements such that the body panel that will crumple in a predisposed manner upon impact. Spaced reinforcements, as described in various embodiments in the application inherently means there are areas in the panel that have reinforcements and which are separated from each other by areas in the panel that do not have the reinforcements. There is no such structure in Amano. Further, one of ordinary skill in the art would not consider the corrugations for sound deadening purposes as corresponding to the claimed spaced reinforcement. Thus, Amano does not disclose, suggest or teach the use of spaced reinforcements in combination with a colored sheet of material as set forth in claim 3.

Vogt also does not disclose, suggest, or teach the combination of elements in claim 3. Vogt teaches the use of a body panel having inner and outer skins bonded to a soft core structure made from foam, a honeycomb structure, or paper webbing to form crumple zones, which is a structure very different than that claimed by Applicant. Thus, even the combination of the Spain, Amano, and Vogt references does not teach forming spaced reinforcements in combination with the sheet of

Docket No. 60,130-709 (99MRA0211)

colored material as set forth in claim 3. For similar reasons claim 14 is also allowable over this combination of references.

Claim 20 includes a colored layer forming an exterior surface of a vehicle body panel and a reinforcement layer attached to said colored layer and including a plurality of first sections having a first deformability and a plurality of second sections having a second deformability that is less than said first deformability wherein said first and second sections alternate in a predetermined pattern laterally across the body panel.

None of the references teach first and second sections of varying deformability that alternate in a predetermined pattern laterally across the body panel as set forth in claim 20. The reinforcements (1c) indicated by Examiner in Amano are not reinforcements for a body panel and in fact actually decrease the circumferential tensile strength of the cylindrical vessel. The corrugations 1c are formed within the cylinder to reduce the ring frequency. Amano does discuss anisotropic formation of a cylinder where the tensile rigidity in the circumferential direction is less than the tensile rigidity in the axial direction but this feature is specifically described as being a benefit related to a cylindrical component and not to that of a flat plate. Thus, Amano is directed toward issues specifically related to cylindrical components, which are very different than the planar vehicle body panels described in Spain and Vogt.

The examiner argues that vehicle body panels have some amount of curvature. Flat panels with "some" amount of curvature are very different than cylindrical components. Further, airplane fuselages are formed as cylindrical components because of the specific benefits provided by cylindrical pressure vessels. Automobile panels are not subjected to the same type of pressure stresses that airplane fuselages are subject to and thus, have very different design requirements. There are no automobile panels, that Applicant is aware of, that are shaped as a cylinder. If one of ordinary skill in the art were asked, which of a cylinder or flat sheet, an automobile body panel more closely resembled, one of ordinary skill in the art would certainly reply "flat sheet." Further, Applicant was simply pointing out that the benefits taught by Amano are specifically directed toward a cylindrical fuselage and are not applicable to a flat plate component. Thus, there would be no reason incorporate the teachings of Amano into Spain.

Docket No. 60,130-709 (99MRA0211)

Further, the Examiner cites Figure 10 of Amano as showing reinforcing fibers in laterally spaced rows. Applicant respectfully traverses this characterization of Figure 10. Figure 10 simply shows the formation of a composite cylinder with layers have different fiber concentrations being overlaid on top of one another to form a composite cylindrical pressure vessel. Figure 10 does not show first and second sections alternating in a predetermined pattern *laterally* across the body panel as claimed by Applicant in claims 20 and 16. In fact, the surface that extends across the vessel portion in Figure 10 is constant in a lateral direction throughout it's cross-section, i.e. presents a uniform lateral surface composed of a single type of material, there is no alternating pattern. For similar reasons claims 24 and 34-37 are also allowable over the cited references.

Thus, Applicant believes that all claims are allowable over the prior art, and an early indication of such is earnestly solicited. Applicant believes no additional fees are due, however, the Commissioner is authorized to charge Deposit Account No. 50-1482 in the name of Carlson, Gaskey & Olds for any additional fees or credit the account for any overpayment.

Respectfully submitted,

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CERTIFICATE OF TRANSMISSION UNDER 37 CFR 1.8

I hereby certify that this correspondence is being facsimile transmitted to the United States patent and Trademark Office, fax number (703) 308-3297, on January 10, 2003.


Kerrie A. Laba